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BENJAMIN RUSH ON
REVOLUTIONARY WAR HYGIENE

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TWO HUNDRED years ago (January 30, 1778) an angry Benjamin Rush resigned as physician general of the middle department of the Revolutionary Army's medical service. Rush's regime had been a short and stormy one.¹ Internal politics in Pennsylvania forced him out of the Continental Congress in late February 1777. As chairman of the medical committee, one of his last acts had been to recommend a revision of the plan supported by General George Washington to reorganize the medical department. On April 11, 1777 the Continental Congress approved this plan to create a department with stronger central control. Dr. William Shippen, Jr., was appointed director general, and Rush was put in charge of the middle department.

Rush's military service lasted a scant 10 months, but during this time most of the British Army's campaigns were fought in New Jersey and Pennsylvania and were therefore Rush's territorial responsibility. He was at the battle of Brandywine and had observed the aftermath of the defeat at Germantown. He had seen, as a medical volunteer the year before, the

range of acute medical problems which arose from the battles of Trenton and Princeton. Rush was incensed by the lack of care the sick and wounded troops were receiving and by waste and profiteering. He engaged in a prolonged and intemperate attack against two men, General Washington, and, to a much greater degree, against his colleague and former teacher, William Shippen, Jr. Rush respected Washington and had great hopes for his success as the country's leader. But after seeing the deplorable conditions at Valley Forge and discussing the situation with other dissatisfied men, he became increasingly disenchanted with Washington. Rush wrote an unsigned critical letter attacking Washington, which he mailed to a Congressional correspondent, Patrick Henry. As Hawke has noted, "In doing so he perpetrated if not the most indiscreet act of his life, certainly the most harmful in the long run to his reputation."² Henry sent the letter to Washington who immediately recognized its authorship, having received numerous exhortations from Rush in the past. He was infuriated by Rush's apparent duplicity.³ In the meantime, Rush had expressed his views directly to the Continental Congress about the inadequacies of the medical department under the direction of Shippen. An investigatory committee was formed by Congress with Rev. Dr. John Witherspoon as chairman. Rush was on friendly terms with Witherspoon and expected a favorable hearing, but Witherspoon concluded that since Shippen and Rush could not work together one of them would have to resign. Because Rush could not expect any of the major reforms he had suggested to be enacted, Witherspoon suggested that he be the one to leave. Rush did. On January 30, 1778 he wrote a letter of resignation to the president of the Congress and ended his career as a military physician.

In spite of his short term as chairman of the middle department of the medical service, Rush's influence on military medicine would persist long past his own lifetime. General (and Doctor) Stanhope Bayne-Jones wrote:

Four great men in the Continental Army during the Revolution—two laymen and two physicians—stand out prominently for their constant striving in promulgating principles of hygiene and their efforts to obtain action by officers and men to limit the occurrence and spread of disease, and to preserve the health of troops. These men were General George Washington, Maj. Gen. Baron von Steuben, Dr. Benjamin Rush, and Dr. James Tilton.⁴

What then were Rush's esteemed contributions? Part resulted from his emotional and political agitations which we will discuss shortly. The remainder came from published intellectual contributions which were by comparison quite tranquil.

When his term in the Continental Congress came to an end, Rush probably anticipated being offered a military position. The 31-year-old physician began to marshal his thoughts to prepare an appropriate publication, and turned to the question of the preservation of health, a topic of great military importance and one that had interested him earlier in his life. Five years before he had published his first pamphlet on hygiene, *Sermons to Gentlemen Upon Temperance and Exercise*.⁵ Knowing that this topic was timely and of broad interest, he decided to send his pamphlet to a local paper, a technique he had used previously for a number of political articles published under such pseudonyms as Hamden, Philopaidos, XYZ, etc. He submitted his essay, "To the Officers in the Army of the United American States: Directions for Preserving the Health of Soldiers," to the *Pennsylvania Packet*. The editor of this newspaper was so impressed with it that he published it on the first page of the *Packet* on April 22, 1777. Rush sent copies of the article to a number of influential friends. General Nathanael Greene was gratified to receive a copy and urged Rush to reissue it in pamphlet form.⁶ On September 5, 1777 the Board of War requested that Rush republish his recommendations; however, he was too busy with military campaigns in the fall of 1777 to do so, and it was not until late winter that he complied with their request just after resigning his command. It was then printed by John Dunlap, who had moved his press from Philadelphia to Lancaster, Pa., under the altered title of *Directions for Preserving the Health of Soldiers: Recommended to the Consideration of the Officers of the Army of the United States*. It was essentially the same as the original essay, with prevention of illness clearly his main goal. As he said feelingly in the second edition: "Fatal experience has taught the people of America that a greater proportion of men have perished with sickness in our armies than have fallen by the sword."

Although this pamphlet contains the fruits of Rush's own experiences, it is based on other (especially British) medical thought.⁷ By far the most noted author on military hygiene was the famous English surgeon, Sir John Pringle. Pringle had had a very distinguished career. Rush met him in London through the auspices of his mentor at St. Thomas Hospital, Dr. Richard Huck-Saunders, and through Benjamin Franklin, who was also friendly with Pringle. Pringle's classic book, *Observations on the Diseases of the Army*, was first published in 1752, and was republished with revisions seven times during his lifetime; it was translated into French, German, and Italian.⁸ Rush knew it well and spoke highly of Pringle.

There are four more authors important to the development of military medicine of this period. One was the famous Viennese physician and friend of Pringle, Gerhard van Swieten. Rush never met van Swieten but, like most students of medicine in the 18th century, he knew his works well. While a youthful medical apprentice in Philadelphia, Rush had abridged van Swieten's commentaries on the *Aphorisms* of Boerhaave.⁹ Van Swieten published his book on military medicine in Vienna in 1758. It was translated into English as *A Short Account of the Most Common Diseases Incident to Armies*. To make it more available to the colonists, it was reprinted in Philadelphia in 1776 and in Boston in 1777.¹⁰

Two British authors were also of central importance to the development of military medicine. One of them, Richard Brocklesby, apparently was unknown to Rush. Brocklesby was Pringle's successor as surgeon general in the British army in Germany in 1758. After considerable military experience, Brocklesby wrote *Oeconomical and Medical Observations, in Two Parts, From the Year 1758 to the Year 1763, Inclusive*.¹¹ Rush, however, was familiar with Donald Monro's book, *An Account of the Diseases Which Were Most Frequent in the British Military Hospitals in Germany, From January 1761 to the Return of the Troops to England in March 1763*, which appeared the same year as Brocklesby's, and was even more interested in the appended "An Essay on the Means of Preserving the Health of Soldiers, and Conducting Military Hospitals."¹² There is a possibility that Rush may have met Monro, who was the brother of Rush's teacher in Edinburgh, Alexander Monro, Secundus.

The final member of this quartet was native-born John Jones, first of New York and then of Philadelphia. Rush respected Jones, and after he had died he described him as not having a rival in surgery in the United States and praised his fine qualities as a human being. Rush may have been somewhat bothered that the leading figures in government used him as their Philadelphia physician in years to come, but as Jones was really a surgeon, Rush could not have been threatened very much because this was an area of medicine that had never intrigued Rush. Jones also had the advantage of having served with the British Army during the French and Indian wars from 1758 to 1763; consequently, it is understandable why this professor of surgery at King's College would write a book entitled *Plain Concise Practical Remarks on the Treatment of Wounds and Fractures*. First published in New York in 1775, it was reprinted the following year in Philadelphia.¹³ Rush once again was more attentive to Jones' 13-page

“Appendix, containing some short hints on the structure and oeconomy of hospitals, etc.” which showed also the influence of Pringle, whom Jones had also had the opportunity to meet during a period of medical studies in London.

These books were the works immediately available to the American physician struggling to understand how to apply his medical skills to the special problems which arose in a military setting. Van Swieten and Jones were easier to obtain as they had been published in this country, while readers of Pringle and Brocklesby had to seek out copies printed abroad. Few physicians would have the extensive personal library that Rush was amassing.

RUSH'S HYGIENE

Rush wished to provide a small pamphlet whose compactness would make it practical both for the physician and the line officer in the field, and it was ironical that Rush's *Directions* appeared just as he was resigning his commission. In a letter to General Nathanael Greene on February 1, 1778, Rush said that the Board of War had ordered 4,000 copies to be printed. Somewhat poignantly (but incorrectly) he added, “I bequeath it as my last legacy to my dear countrymen in the line of my profession.” Three days later he sent a copy to his correspondent, General Horatio Gates, asking him how they should be distributed as “he wished them to be as useful as possible.”¹⁴

Rush divided *Directions* into five main sections: I. Dress; II. Diet; III. Cleanliness; IV. Encampments; and V. Exercises. He also included a “few hints” on other topics throughout it. That his *Directions* relate directly to the problems facing a military commander may be seen by comparing the careful study by Philip Cash of the medical problems arising in the siege of Boston, and which led to the formation of the medical department.

In trying to protect the health of the army during this period, eight problems in particular had to be dealt with: the acquisition of a sufficient food supply, the control of the flow of liquor, the provision of proper clothing and shelter, the maintenance of effective sanitation, the prevention of a smallpox epidemic, the procurement of an adequate supply of medicines and medical equipment, the acquisition of enough doctors, and the establishment of some sort of organized medical care.¹⁵

MANAGEMENT AND DISCIPLINE

Many of the topics on hygiene listed above were included under the

traditional classical rubric of the six non-naturals, which included: 1) air 2) food and drink, 3) sleep and wakefulness, 4) motion (including exercise) and rest, 5) evacuations and retentions, and 6) the passions of the mind.¹⁶ The emphasis on cleanliness also has a more ancient base and the Mosaic sanitary code was cited by George Washington in his cleanliness broadside to the troops.¹⁷ In British medicine the overall application of these preventive measures were increasingly called regimen or management. In psychiatry this would lead to the terminology of moral management, or, as it is better known, moral treatment. Preventative management was Rush's greatest goal, a concern that appeared widely and repeatedly in his letters of 1777-1778. His preoccupation was on two levels which he felt were intimately intertwined. One had to do with management on an administrative level, partly designed to reduce the possibilities of greed taking its toll, and meant primarily to improve the quality of medical care. In his prescriptions for administrative reform, he brought to bear his political belief of the necessity of checks and balances.¹⁸ The second dealt with the actions an individual soldier could undertake on his own behalf. These related urgently to the need to avoid the many infections that threatened the well-being and life of the soldier such as smallpox, typhus, typhoid, pneumonia, syphilis, and a wide variety of dysenteries.

Rush felt strongly that inefficient management led to overcrowding of the hospitals, with frequent deaths from what he called "putrid fever" and other infectious diseases. He wrote to William Duer, a member of Congress, on December 13, 1777, the following:

What do you think of 400 sick being crowded into a house large enough (according to the calculations of Pringle, Monro and Dr. Jones, who have all written upon military hospitals) for only 150? This has been done in one place, and the consequence of it was a putrid fever was generated which carried off 12 soldiers in three days (who all came into the hospital with other diseases) and many more in the space of two weeks. Upon my complaining to the Director General that he had crowded too many sick into one house, he told me "he was the only judge of that, and that my only business was to take care of all he sent there." Your system justified his making me this answer, although it does not oblige him ever to go inside of a hospital or to expose himself to the least danger of being infected by a fever. Six surgeons have died since last spring of fevers contracted in our hospitals, and there is scarcely one who has not been ill in a greater or lesser degree with it. Nothing like this has happened in the northern department.¹⁹

Rush claimed that a separation of responsibilities similar to that followed in the British medical system was the answer. Rush had described

the unacceptable American system in a letter to Duer a few days earlier:

The director general possesses all the powers of the above officers. He is chief physician, inspector general, purveyor or commissary general, physician and surgeon general. All reports come through his hands, by which means the number of sick, wounded, and dead may always be proportioned to his expenditures and to his fears of alarming Congress with accounts of the mortality of diseases. He can be present only in one place at a time but is supposed to be acquainted with all the wants of his hospitals. This is impossible. The sick therefore must suffer, for the surgeons of hospitals have no right to demand supplies for them, the director general being the only judge of their wants. Lastly, his accounts are not certified by the physicians and surgeons general, so that the sick have no security for the stores and medicines intended for them. A director general may sell them to the amount of a million a year without a possibility of being detected by your present establishment. All that the Congress requires of him are receipts for the purchase of the articles intended for the sick.

These ample and *incompatible* powers thus lodged in the hands of *one* man appear to be absurd as if General Washington had been made quartermaster, commissary, and adjutant general of your whole army. And your having invested him with a power to direct the physicians and surgeons in anything while he acts as purveyor is as absurd as it would be to give the commissary general a power to command your commander in chief. To do the duty of purveyor general *only*, requires a share of industry and a capacity for business which falls to the lot of few men in the world. What can be expected then from one who, added to that office, is responsible for every life in the army?

Rush then calls on the authority of Dr. Donald Munro for an organizational model separating responsibilities, and summarizes the British system which is said to be the most perfect in the world as follows:

1. There is an inspector general and chief physician, whose only business it is to visit all the hospitals, to examine into the quantity and quality of the medicines, stores, instruments, etc., and to receive and deliver reports of the number of sick and wounded to the commander in chief.
2. There is a purveyor general, whose business it is to provide hospitals, medicines, stores, beds, blankets, straw, and necessities of all kinds for the sick and wounded. He is allowed as many deputies as there are hospitals. He has nothing to do with the care of the sick.
3. There are physicians and surgeons general, whose business it is to administer the stores provided by the purveyor general and to direct everything necessary for the recovery, the convenience, and happiness of the sick. The purveyor is subject to all their orders, which are always made in writing to serve as vouchers for the expenditures of the purveyor. As an additional check upon the purveyor, none of his accounts are passed until they are certified by the physicians and surgeons general. This renders it impossible to defraud the sick of anything prescribed or purchased for them. The physicians and surgeons general have deputies under them who are called *seniors* and *mates*.²⁰

Rush's promotion of the British system was not based only on Pringle's and Monro's theories, however. War conditions provided him with an opportunity to see it first hand.

I attended in the rear at the battle of Brandywine on [11th of September, 1777] and had nearly fallen in the hands of the enemy by my delay in helping off the wounded. A few days after the battle I went with several surgeons into the British camp with a flag from Genl. Washington to dress the wounded belonging to the American Army who were left on the field of battle. Here I saw and was introduced to a number of British officers.... I was much struck in observing the difference between the discipline and order of the British and Americans. I lamented this upon my return. It gave offense and was ascribed to fear and to lack of attachment to the cause of my country.²¹

This account had been written much later after the event for Rush's autobiographical *Travels Through Life*. Much more immediate and emotional was his account of the experience to John Adams three weeks after it had occurred.

I was struck upon approaching General Howe's line with the *vigilance* of his sentries and pickets. They spoke, they stood, they looked like the safeguards of the whole army. After being examined by 9 or 10 inferior officers, I was not permitted to enter their camp till an officer of distinction was sent for, who after asking a few questions ordered a guard to conduct me to headquarters.

They pay a supreme regard to the cleanliness and health of their men. After the battle on the 11th of last month, the soldiers were strictly forbidden to touch any of the blankets belonging to the dead or wounded of our army lest they should contract the "rebel distempers." One of their officers, a subaltern, observed to me that his soldiers were infants that required constant attendance, and said as a proof of it that although they had blankets tied to their backs, yet such was their laziness that they would sleep in the dew and cold without them rather than have the trouble of untying and opening them.²² He said his business every night before he slept was to see that no soldier in his company laid down without a blanket.

Great pains were taken to procure vegetables for the army, and I observed everywhere a great quantity of them about the soldiers' tents.²³ The deputy quartermasters and deputy commissaries in Howe's army are composed chiefly of old and reputable officers, and not of the vagrants and bankrupts of the country.

There is the utmost order and contentment in their hospitals. The wounded whom we brought off from the field were not half so well treated as those whom we left in General Howe's hands. Our officers and soldiers spoke with gratitude and affection of their surgeons. An orderly man was allotted to every ten of our wounded, and British officers called every morning upon our officers to know whether their surgeons did their duty. You must not attribute this to their humanity. They hate us in every shape we appear to them. Their care of our wounded was entirely the effect of the perfection of their medical establishment,

which mechanically forced happiness and satisfaction upon our countrymen perhaps without a single wish in the officers of the hospital to make their situation comfortable.

It would take a volume to tell you of the many things I saw and heard which tend to show the extreme regard that our enemies pay to discipline, order, economy, and cleanliness among their soldiers.

In my way to this place I passed through General Washington's army. To my great mortification I arrived at the headquarters of a general on an outpost without being challenged by a single sentry. I saw soldiers straggling from our lines in every quarter without an officer, exposed every moment to be picked up by the enemy's light horse. I heard of 2,000 who sneaked off with the baggage of the army to Bethlehem. I was told by a captain in our army that they would not be missed in the returns, for as these were made out *only* by *sergeants* they would be returned on parade, and that from the *proper* officers' neglecting to make out or examine returns General Washington never knew within 3,000 men what his real numbers were. I saw nothing but confidence about headquarters and languor in all the branches and extremities of the army. Our hospital opened a continuation of the confused scenes I had beheld in the army. The waste, the speculation, the unnecessary officers, etc. (all the effects of *our* medical establishment), are enough to sink our country without the weights which oppress it from other quarters.²⁴

Rush recognized that many factors entered into the proper application of discipline. One was the realistic limitation of demands that could be placed on persons assigned to maintain control. Writing to John Adams on October 21, 1777, he pointed out:

In the British army pickets are relieved once or twice every day, and guards every *two* hours. In General Washington's army it is no uncommon thing for pickets to remain *five* days and guards 24 hours without a relief, and destitute at the same time of provisions except such as they plunder or buy with their own money. This negligence is a fruitful source of diseases in our army. In the British army, hospitals are never without guards. In GW's army guards which might save the lives of hundreds are used to parade before the doors of our major generals. One of them had no less than a sergeant and 18 men to guard himself and his baggage through this town.²⁵

Rush wrote to General Nathanael Greene about the importance of maintaining a consistently proper sense of response to the military chain of command:

We have in the hospital of this place near 500 sick and wounded soldiers, many of whom have complaints so trifling that they do not prevent their committing daily a hundred irregularities of all kinds. The physicians and surgeons of the hospital possess no power to prevent or punish them. The design of this letter is to beg that you would send immediately two or three officers, or even one if more cannot be spared, to take the command in this place. The sick cannot be governed

without military authority. But if the sick as patients derived no advantages from being subject to military rules, I am persuaded your army will benefit by it hereafter. A soldier should never be suffered to exist a single hour without a sense of his having a master being impressed upon his mind, nor the fear of military punishments. It is to no purpose to train your men to subordination in the field or camp. In one month they will lose in our hospitals the discipline of a whole year without officers to command and govern them. In the British army the hospitals constantly feel the influence of military authority. An officer of note is always stationed near a hospital who is called a MILITARY INSPECTOR. His business is to appoint guards, have a roll called, visit the wards, and finally to report all deficiencies to the commander in chief. It is in consequence of this and some other useful regulations made use of in the British army, that Mr. Howe has at this time only 1000 sick and wounded in his hospitals at Philadelphia, while we in the *same* time, and with no *more* battles and hardships, have filled our hospitals with near 4000.²⁶

Rush's desire for order and discipline arose from his Calvinist background and his highly developed moral sense, but there can be no doubt that much of his anguish was fueled by the very real neglect and abuse that he saw all around him. The need for order and control is spelled out in greater detail in a letter he finally wrote directly to General Washington the day after Christmas 1777, having given up hope that he could move the Director General, Dr. Shippen, to effect any reforms.

I need not inform your excellency that we have now upwards of 5000 sick in our hospitals. This number would cease to be alarming if our hospitals could afford such accommodations to the poor fellows as would ensure them a speedy recovery. But this is far from being the case. There cannot be a greater calamity for a sick man than to come into our hospital at this season of the year. Old disorders are prolonged, and new ones contracted among us. This last is so much the case that I am safe when I assert that a *great majority* of those who die under our hands perish with diseases caught in our hospitals. When I consider the present army under your excellency's command as the last hope of America, I am more alarmed and distressed at the facts than I have words to express. I can see nothing to prevent the same mortality this winter among our troops that prevailed last year. Every day deprives us of four or five patients out of 500 in the hospital under my care in this place.²⁷

Many facets of Rush's medical theory entered into these considerations. He railed against crowding because he believed that the putrid emanations of the very ill somehow were contagious or could create potentially fatal illness in the mildly ill. This was 100 years before microbial knowledge, but we can imagine that the clinical observations made by Rush and his colleagues led them to recognize potential risks. As an experiment, Rush housed mildly ill men with farmers in the battle vicinity. He believed they

recovered more completely due to fresher air, and the addition of milk and vegetables to their diet. Rush was specific in his views on cleanliness; he suggested bathing, washing hands (at least once a day), clean cooking utensils, clean clothes, clean blankets (including sunning daily), fresh straw for bedding, the choice of encampment, the removal of animal offal, and the provision of proper sanitation for excrements. He warns against the use of blankets that had warmed dying soldiers. Interestingly enough, he strongly opposed the fringed deerskin hunting shirt that almost became the symbol of the American Revolutionary War soldier; "Besides accumulating putrid miasmata, it conceals filth and prevents a due regard being paid to cleanliness."²⁸ He lamented the infancy of our manufacturing industry, which forced the reliance on linen cloth when he would have much preferred material made of flannel. It was through the intelligent application of discipline in all these areas that Rush hoped to reform the hospital system and to save the lives of countless soldiers who would then be available for General Washington to bring eventual victory for the colonists.

Rush said: "We shall never do well till you adopt the system made use of in the British hospitals."²⁹ He pointed out that it had already been done once, and he believed that there was no reason that it could not be repeated. He put himself in a somewhat awkward position, however, when he cited as his example Dr. Benjamin Church. Church had become the first Director General of the Continental Medical Department in July 1775, but within three months was found guilty by court-martial of treasonable correspondence with the enemy. Rush's conviction was increased by Dr. Charles McKnight, who "informs me that he never has seen order, economy, or happiness in a hospital since it was banished by Dr. Morgan and his successor. My heart is almost broken at seeing the distresses of my countrymen without a power to remedy them."³⁰

It was ironic that relief was on the way. Rush resigned (January 30, 1778) when he understood that Witherspoon and his committee had taken a stand that no major changes would be forthcoming. On February 6, 1778 the committee submitted its report, which was immediately adopted, and, for some perplexing reason, it included almost all the reforms for which Rush had been so ardently agitating. When he learned of the action of the Congress, he wrote: "They contain not only every improvement I wished for, but several more, and I am happy in finding that they give universal satisfaction both to the public and to the surgeons of the hospitals. Had I

expected such a change would have been made in the system, I should *not* have resigned my commission.”³¹

DRUNKENNESS

The question of order and discipline and, for that matter, his fight with Shippen, were also part of Rush's efforts to bring preventive medicine to bear on the problems related to drinking. Alcoholism was widely recognized by the medical profession and was the psychiatric problem most frequently observed during the Revolutionary War (psychiatry, of course, had not yet emerged as an organized profession). Rush spoke of the need for discipline in providing temperance on three levels: for the Director General because of the experiences he had had with Shippen, for the generals, and finally for the men in the service, the foot soldiers on whom victory depended.

Rush's agitation for administrative reform was partly motivated by Shippen's actions in his role of Purveyor General. Rush accused Shippen directly of selling both sugar and wine taken from hospital supplies to local tavern keepers. In addition, he collected evidence that the hospital stores of Madeira were so diluted with water as to make the wine worthless as a therapeutic agent. Morgan's efforts, with Rush's assistance, finally led to Shippen's court-martial. It is part of the stormy and rather unsavory history of the beginnings of military medicine in the United States Army that all three of the first Director Generals, Church, Morgan, and Shippen, were subject to lengthy controversy, investigations, or courts martial.³²

Although the court acquitted Shippen, considerable damage had been done to his reputation. Not only had the respected Dr. James Tilton testified about the deplorable conditions in the hospitals, but the board also concluded, “that Doctor Shippen did speculate in and sell hospital stores, THAT IS, stores proper for hospitals whilst he was purveyor general: which conduct they consider highly improper, and justly reprehensible.”³³

Rush also had concern for the fate of the Revolutionary soldier whose life might be endangered by the actions of a drunken commander. Major General Adam Stephen, a man Rush had previously liked, was cashiered out of the army after a distinguished career after being found guilty of drunkenness at the battle of Germantown. Rush, who could never condone such behavior, now referred to him as, “a sordid, boasting, cowardly sot.”³⁴

The fashion of blaming our soldiers and officers for all the disorders of our army

was introduced in order to shelter the ignorance, the cowardice, the idleness, and the drunkenness of major generals....There are a hundred things true which cannot be proved. A general may play the coward both in the cabinet and the field, or he may raise the price of whiskey by getting drunk every day of his life, and yet it may be impossible to prove either of these things against him in a court of inquiry.

Rush suggested some impractical solutions to these problems in a letter to John Adams. They were:

1. Resolved that if any major or brigadier general shall drink more than one quart of whiskey, [which I must say seems like an exceedingly generous allowance!!] or get drunk more than once in 24 hours, he shall be publicly reprimanded at the head of his division or brigade.
2. Resolved that in all battles and skirmishes the major and brigadier generals shall not be more than 500 yards in the rear of their respective divisions or brigades upon the pain of being tried and punished at the discretion of a court-martial.³⁵

Rush did not limit his complaints about alcoholic abuse to the officers, but he believed that the officers should establish the example and the discipline to reduce the drinking of hospitalized soldiers. At one point he complained to Adams that,

upwards of 100 of them were drunk last night. We have no guards to prevent this evil. In Howe's army a captain's guard mounts over every 200 sick. Besides keeping their men from contracting and prolonging distempers by gambling, drinking, and whoring, guards keep up at all times in the minds of the sick a sense of military subordination. A soldier should never forget for a single hour that he has a master.

Rush saw his patients go on rampages:

...inhabitants are plundered, and the blankets, clothes, shoes, etc., of the soldiers are stolen or exchanged in every tavern and hut for spirituous liquors. I have witnessed these things for these six months and have complained of them to the director general, to the Congress, and to the generals of the army to no effect.³⁶

These spontaneous comments in his letters give us the day-to-day background for the extensive coverage of the abuse of spirituous liquors that he included in his *Directions*.

What shall I say to the custom of drinking spirituous liquors which prevails so generally in our army? I am aware of the prejudices in favor of it. It requires an arm more powerful than mine—the arm of a Hercules—to encounter them. The common apology for the use of rum in our army is that it is necessary to guard against the effects of heat and cold. But I maintain that in no case whatever does rum abate the effects of either of them upon the constitution. On the contrary, I believe it always increases them. The temporary elevation of spirits in summer and the temporary generation of warmth in winter produced by rum always leave

the body languid and more liable to be affected with heat and cold afterwards. Happy would it be for our soldiers if the evil ended here! The use of rum, by gradually wearing away the powers of the system, lays the foundation of fevers, fluxes, jaundices, and all the train of diseases which occur in military hospitals. It is a vulgar error to suppose that the fatigue arising from violent exercise or hard labor is relieved by the use of spirituous liquors. The principles of animal life are the same in a horse as in a man, and horses, we find, undergo the severest labor with no other liquor than cool water. There are many instances where even reapers have been forced to acknowledge that plentiful draughts of milk and water have enabled them to go through the fatigues of harvest with more pleasures and fewer inconveniences to their health than ever they experienced from the use of mixture of rum and water.

Spirituous liquors were unknown to the armies of ancient Rome. The canteen of every soldier was filled with nothing but vinegar, and it was by frequently drinking a small quantity of this wholesome liquor mixed with water that the Roman soldiers were enabled to sustain tedious marches through scorching sands without being subject to sickness of any kind. The vinegar effectually resists that tendency to putrefaction to which heat and labor dispose the fluids. It moreover calms the inordinate action of the solids which is created by hard duty. It would be foreign to my purpose, or I might show that the abstraction of rum from our soldiers would contribute greatly to promote discipline and a faithful discharge of duty among them. Gen. Wolfe, who was a philosopher as well as a general, never suffered a drop of spirits to be drunk by his soldiers except when they served as sentries or upon fatigue duty in rainy weather. Perhaps these are the only cases in which a small quantity of rum may be useful. It will be of the most essential service if it be mixed with three or four times its quantity of water.³⁷

In these comments and activities one can see the beginning of a lifelong interest in the problems of alcoholism; an interest that would see Rush adopted in the 19th century as the founder of the American temperance movement. His campaign began with his 1772 *Sermons to gentlemen upon temperance and exercise*. After *Directions* his next salvo in print occurred later during the Revolutionary War, and was not directed to the military but against the abuses of alcohol that occurred on farms during the yearly harvest. His anonymous *To the Editor of The Pennsylvania Journal: Against Spirituous Liquors*, published in June 1782, led to his 1784 temperance pamphlet. The latter, republished under the title *An Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind*, went through 20 editions by 1820 and thereafter the American Tract Society distributed 172,000 copies before 1850.³⁸ It became Rush's most popular publication.

Rush also had an opportunity late in his life to reconsider the role of alcohol in military service and wrote the following in 1810:

Our Author Sir John Pringle, has recommended the use of ardent spirits by soldiers in several places, in treating of the means of preventing their diseases. The Editor has reserved a few remarks upon this advice for the concluding part of his labours, in order, by giving them in a connected and concentrated state, to render them more impressive upon the minds of his readers. He does not think ardent spirits should form a part of the daily ration of the soldier. They induce a predisposition not only to camp, but to many chronic diseases. They likewise weaken the discipline of an army. Most of the punishments inflicted upon soldiers are for neglect of duty, or for crimes committed while they were under their influence....

Our country affords many instances, especially among the societies of friends and methodists, of the labours of the harvest being more easily sustained by the use of milk and water, or molasses and water, than by the transient stimulus of rum and water....

The substitutes for these destructive liquors should be:

1. Vinegar and water, with or without a little molasses. Vinegar and water constituted the only drink of the Roman armies in their long marches over burning sands with a weight of sixty pounds in military weapons attached to each soldier, and yet we read of scarcely any diseases among them.
2. Milk and water, or molasses and water.
3. As drink is often called for, rather to obviate fatigue than to allay thirst, certain cordial articles of aliment should be taken with it, or preferred to it. These should be onions, garlic, the dried fruits of our country, a piece of dried beef, a neat's tongue, a sausage, or a little sugar. The American Indians use no other cordial to support them in their long and fatiguing marches, than a few spoonsful of a mixture of the fine powder of *green* corn dried, and maple sugar, which they carry with them in baskets, mixed with a little water. The strength acquired by all these articles is of a durable nature, and is not followed, like that derived from the temporary effects of spirits upon the body, by languor, sickness, and a predisposition to camp diseases.³⁹

NEUROTIC DISORDERS

Alcoholism is the psychiatric problem mentioned most frequently in these early texts. Monro refers to no other disorder, while Brocklesby has a brief comment about "idle hypochondriacal malingerers," whom he instructed about the lethal dangers of hospital fever if they insisted on staying about a hospital too long.⁴⁰ Van Swieten has one paragraph on nostalgia.⁴¹ Pringle speaks of the six non-naturals, but of the ones of psychological import mentions only insomnia and says nothing about the emotions. Both van Swieten and Pringle have some pages on brain infections (phrenzy) while Jones has some nice material on commotion or concussion of the brain.

Even Rush does little with the general emotions under military conditions. In his 1812 *Diseases of the Mind*, Rush cites Dr. Johann Brambilla as a source of the information that fear often produces madness in the new recruits in the Austrian army.⁴² Rush noticed that soldiers often had an increased thirst at the beginning of a battle and then felt a diffused glow of heat. He also found that soldiers withstood surgery more easily right after a battle than later on. That the excitement of winning could prevent disease for as long as six weeks and “can only be ascribed to the vigour infused into the human body by the victory of Trenton, having produced insensibility to all the usual remote causes of diseases.”⁴³ It was to alcoholism and to a lesser extent nostalgia that Rush devoted his psychiatric writings dealing with Revolutionary War hygiene.

NOSTALGIA OR HOMESICKNESS

The Continental Congress moved its meeting place from Philadelphia to Baltimore and Rush as a member quite naturally went along. While in Baltimore he felt the symptoms of a condition that was gradually being recognized as a common problem for men serving a long ways from home and their loved ones. Writing to his wife, Julia, on January 24, 1777, he clearly stated his distress:

You wished me a great deal of pleasure and frolicking at Baltimore when you bid me farewell. Alas! my heart sickens at the sound of what is commonly called pleasure. In this state of banishment from *home* and *you*, the music of Corelli would serve only to increase my melancholy. To exchange a *whole* house for a *single* room—to *request* instead of *commanding* when the most trifling favor is wanted—and above all to give up a most affectionate wife for the society of strangers—to lay aside freedom, ease, and unbounded confidence in conversation for constant restraint and formality, are circumstances that illy agree with a man of my age and disposition.⁴⁴

Dr. Johannes Hofer had coined the word nostalgia in a 1678 doctoral dissertation when he discussed the distress often felt by soldiers when forced to serve in another European country with a different language and customs. The 18th century gradually brought an increasing number of publications on the subject, often under the rubric of *heimweh*, or homesickness. Yet first it was thought this was a malady of the Swiss, but writers such as DeMeysery recognized in 1754 its occurrence in the French forces and also the problems it could present in making a differential diagnosis from malingering.⁴⁵ At about the same time, Johann George Zimmerman, who became well known in the new republic for his writings

on sympathy, also wrote on nostalgia. These increased writings were partly the result of the frequent European wars during the mid-century and the widespread use of mercenaries from many nationalities to make up the troops. Even more inclined to provoke the disorder was the British custom of impressment of seamen for their naval ships.

Rush probably first heard of this disorder from the lectures of his much admired teacher at Edinburgh, Dr. William Cullen. In his 1812 *Diseases of the Mind*, Rush speaks of the absence from one's native country as a cause acting on the heart, and talks of nostalgia in the traditional terms.

The Swiss soldiers sometimes languish and die from that form of madness which is brought on by absence from their native country. An ingenious modern poet mentions this disease, as well as its exciting cause, with peculiar elegance.

The intrepid Swiss that guards a foreign shore,
Condemn'd to climb his mount-cliffs no more,
If chance he hear the song, so sweetly wild,
Which, on those cliffs, his infant hours beguil'd,
Melts at the long lost scenes that round him rise,
And sinks, a martyr to repentant sighs.

It is remarkable, this disease is most commonly among the natives of countries that are the least desirable for beauty, fertility, climate, or the luxuries of life. They resemble in this respect, in their influence upon the human heart, the artificial objects of taste which are at first disagreeable, but which from habit take a stronger hold upon the appetite than such as are natural and agreeable.⁴⁶

The latter portion suggests that Rush did not feel nostalgia would be a serious concern of the American soldier. That was not the case as can be seen from the following:

The nostalgia of Doctor Cullen, or the *home-sickness*, was a frequent disease in the American army, more especially among the soldiers of the New England states. But this disease was suspended by the superior action of the mind under the influence of the principles which governed common soldiers in the American army. Of this General Gates furnished me with a remarkable instance in 1776, soon after his return from the command of a large body of regular troops and militia at Ticonderoga. From the effects of the nostalgia, and the feebleness of the discipline, which was exercised over the militia, desertions were very frequent and numerous in his army, in the latter part of the campaign; and yet during the *three weeks* in which the general expected every hour an attack to be made upon him by General Burgoyne, there was not a single desertion from his army, which consisted at that time of 10,000.

The patience, firmness, and magnanimity with which the officers and soldiers of the American army endured the complicated evils of hunger, cold, and nakedness, can only be ascribed to an insensibility of body produced by an uncommon tone of mind excited by the love of liberty and their country.⁴⁷

RUSH AND HIS LEGACY AS A HYGIENIST

Although Rush ended his military service in 1778, his *Directions* continued to live on. It is impossible to say how long copies were issued to the troops and were in use. Because of their direct usefulness and portability, it is likely that they were passed from officer to officer until they were literally worn out. Certainly very few of them survived to find their way into libraries today, and many of those that did are imperfect. *Directions* continued to be republished. Dr. Edward Cutbush, who went on to a distinguished career as a naval surgeon, graduated from the University of Pennsylvania as a student of Rush's in 1794. Cutbush published a study on military medicine in 1808, *Observations on the Means of Preserving the Health of Soldiers and Sailors*.⁴⁸ As an appendix he included Rush's *Directions*, and in his preface thanked Rush for bringing it to his attention. And so, during the war of 1812 Rush's writings were again available to the military. And yet the end was not in sight, for it appeared at least twice during the Civil War. It was last reprinted in *Military Surgeon* in 1908, but the focus was on its historical value and not on its practical use.⁴⁹

Later in his life Rush undertook the project of republishing certain classical medical works with his own annotations, "intended to accommodate them to the climate, diet, manners and diseases of the inhabitants of the United States."⁵⁰ The first to appear was George Cleghorn's *Observations on the Epidemical Diseases of Minorca*, and very soon after *The Works of Thomas Sydenham, M.D., on Acute and Chronic Diseases*, an author Rush much respected and admired. Rush wrote to his son James, studying medicine in Scotland, that he was busy preparing them as well as a new edition of his own collected works, and hoped to have them published in time for the beginning of his classes for medical students in November 1809. He also planned to republish James Lind's *An Essay on Diseases Incidental to Europeans in Hot Climates*, but apparently abandoned the project when another edition appeared before his was ready. James Lind's writings had also been important to military hygiene during the Revolutionary War, for he had introduced in his 1753 *A Treatise on Scurvy* the importance of the various citrus fruits in preventing scurvy, which was then widely prevalent and debilitating. Rush also reprinted William Hillary's *Observations on the Changes of the Air, and the Concomitant Epidemical Diseases in Barbadoes, with a Treatise on the Bilious Remitted Fever*.⁵¹

Rush also planned to reprint Sir James Pringle's book on military hygiene. Rush had liked and felt indebted to Pringle, and in a letter he wrote to his friend Thomas Jefferson on August 22, 1800 that since Pringle had become a Christian and even adopted a republican position, he now approved of him even more. Rush worked on his edition of *Observations on the Diseases of the Army* in the spring of 1810, and once again it appears to have been published in time for his fall class.⁵² It included a two-page introduction by Rush and 137 notes based on his own clinical and treatment experiences. When his edition of Pringle was reissued in 1812, he wrote Dr. William Eustis, then secretary of war:

An American edition of Sir John Pringle's invaluable treatise upon army diseases has lately been published in this city. Permit me, sir, to ask whether a copy of this work would not be a useful and important article in the furniture of every medical chest for the army of the United States. I am the more disposed to ask this question from my knowledge of the inability of many of the young surgeons to purchase it, and from my recollection of the sufferings of the soldiers of the American Revolution from the ignorance of their surgeons of the contents of that book.⁵³

Rush must have been gratified when Eustis wrote back that a number of volumes had been ordered for distribution to the medical staff.

So much has been written about Rush, the energetic and vigorous treater of illness, that not enough attention has been given to his efforts to promote hygiene. If nothing else, Rush was the great preventer—of bondage (political, racial, and sexual), of ignorance, of poverty, and, most of all, of disease. His preventive efforts were part of the optimism of his time, of the melioristic hope of the Enlightenment. But more important, it was a portion of the central core of Rush's religious thought—the optimism that arises from a millennialist view of the world. Man and God (although pushed further to the background of His created universe) worked together in the reality of this world. These efforts were both worshipful and heralded the eventual reappearance of God's Son and man's redemption. Then mankind would be restored to their original nonsinful state, and disorder and illness would be gone forever. Until God's great day arrived, mankind had the supportive hope that in the meantime they could work toward improvement of the quality of life on earth and the reduction of the likelihood of illness.

Rush had been planning to write a book on hygiene for at least six years. Rush wrote to Thomas Jefferson on March 15, 1813 stating:

I have lately published a volume of inquiries upon the diseases of the mind. They

have been well received by the public. If you wish to look into them, I shall do myself the pleasure of sending you a copy of them. The few sands that remain in my glass urge me constantly to quicken my labors. My next work will be entitled "Hygiene, or Rules for the preservation of health accommodated to the climate, diet, manners, and habits of the people of the United States." All the imperfections of both these publications must be ascribed to a conviction that my time in this world must necessarily be short.⁵⁴

His work on hygiene did not materialize. Benjamin Rush did not realize how prophetic his words were because within a month he was dead from an acute infection, probably typhus, according to his physician, Dr. John Syng Dorsey, but acute pulmonary tuberculosis according to Rush. He died on April 19, 1813 and his last known words were "Be indulgent to the poor."⁵⁵

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 17. Bayne-Jones, op. cit., pp. 33-36, 189-91.
 18. *Letters*, pp. 156 and 181. See also Carlson, E. T. and Wollock, J. L.: Benjamin Rush on politics and human nature. *J. A.M.A.*, 236:73-77, 1976.
 19. *Letters*, p. 175.
 20. *Ibid.*, pp. 172 and 171.
 21. *Autobiography*, pp. 132-33.
 22. Rush believed that: "Soldiers are but little more than adult children. That officer, therefore, will best perform his duty to his men, who obliges them to take the most care of their *Health*." In this sentence Rush reveals the conservative; controlling part of his personality; a portion that came out so clearly with his mentally ill son much later in life and which could seem so at odds with his revolutionary republicanism. Little wonder, then, that Rush wanted the officers to play a strong, fatherly role in making sure their child-soldiers would behave in a proper fashion. Rush, B: The results of observation made upon the diseases which occurred in the military hospitals of the United States, during the Revolutionary War between Great Britain and the United States. *Medical Inquiries and Observations.* Philadelphia, Conrad, 1805, I, p. 275. See also Carlson, E. T. and Wollock, J. L.: Benjamin Rush and his insane son. *Bull. N.Y. Acad. Med.* 51:1312-29, 1975.
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- Washington: Dr. John Cochran, 1730-1807. New York, Columbia University Press, 1977.
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 34. *Letters*, p. 122; Hawke, op. cit., p. 207.
 35. *Letters*, pp. 163-64.
 36. *Ibid.*, pp. 156 and 175.
 37. *Ibid.*, p. 143.
 38. *Ibid.*, pp. 272-73.
 39. Rush, B., editor: *John Pringle's Observations of the Diseases of the Army*, Philadelphia, Earle, 1810, pp. 302-03.
 40. Brocklesby, op. cit., p. 89.
 41. He said, "First. The soldier fresh lifted, and torn at once from his family, no sooner loses sight of his village, but he becomes melancholy; and tho, a robust husbandman, finds himself scarce able to bear the fatigues and inconveniences of a military life. It were wished, that he could be used, little by little, to this new kind of life; but in the mean time nothing is better, than to procure him all kinds of amusement and diversions." van Swieten, op. cit. (Philadelphia), p. 7.
 42. Rush, B.: *Medical Inquiries and Observations upon the Diseases of the Mind*. Philadelphia, Kiber and Richardson, 1812, p. 39.
 43. Rush, B.: An account of the influence of the military and political events of the American Revolution upon the human body. *Medical Inquiries*, op. cit., I, p. 285. Rush also suggested that there might be an increase of illness after a return home. *Letters*, p. 359.
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 46. Rush, *Diseases of the Mind*, op. cit., pp. 40-41. Rush also spoke of the "Swiss Melancholy." The quotation are lines 280-85 from Samuel Rogers' poem, "The Pleasures of Memory" (1792). It refers to "Ranz des Vaches," a traditional melody played on the alpenhorn.
 47. Rush, *Medical Inquiries*, op. cit., I, pp. 285-86.
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